

CLAIMS

1. A system for making a tire with a substantially filled core comprising:
a grinding device capable of grinding cured polyurethane;
a mixer capable of mixing ground polyurethane and a liquid virgin polyurethane; and
a pump configured to transfer the material mixed in the mixing device into the core of a tire.
2. The system of claim 1 wherein said grinding device is capable of producing core bits with an average diameter of less than .125 cubic inches.
3. The system of claim 1 wherein said grinding device is a fine grinder, said system further comprising a coarse grinder, said fine grinder disposed to receive ground polyurethane from the coarse grinder,
4. The system of claim 2 further comprising a hopper disposed above said grinding device, wherein said grinder includes an elongated screw blade.
5. The system of claim 4 wherein said grinder further includes a screen plate with a plurality of holes therein, said holes having a diameter of less than about one half of an inch and being disposed to grind cured polyurethane transferred from the elongated screw blade.
6. The system of claim 1 wherein said mixer is subdivided into three sections.

7. The system of claim 6 wherein said mixer includes an elongated rotatable screw.

8. The system of claim 6 wherein material from the primary grinder is fed into the first of the independent sections.

9. The system of claim 6 wherein the first independent section and the second independent sections are used to develop a pressure in the ground material.

10. The system of claim 6 wherein the third independent section additionally comprises an input device for at least a single stream of unused flatproofing material.

11. The system of claim 6 wherein the third independent section additionally comprises multiple input devices for multiple streams of unused flatproofing material.

12. The system of claim 6 wherein the third independent section has a sufficient length to ensure homogeneous mixing of ground used polyurethane and virgin flatproofing material.

13. The system of claim 1 wherein said injector comprises at least one holding tank for at least one unused flatproofing material, a transfer component connecting each holding tank to a mixing apparatus, and a transfer apparatus connecting the mixing apparatus and the mixer.

14. The system of claim 1 wherein said injector additional comprises a transfer component connecting the mixing apparatus and the pump.

15. The system of claim 1 wherein said pump additionally comprises multiple input sections and a mixer that mixes material received from the injector and the mixer.

16. A system for making a substantially filled tire comprising:
a grinder;
a mixer that combines the unused flatproofing material to the ground used flatproof pneumatic tires;
an injector that injects a mixture of at least one unused flatproofing material into the ground used flatproof pneumatic tires
a pump for transferring the combination of ground used flatproof pneumatic tires and unused flatproofing material from the mixer to a valve;
an input device that inputs the combination into a tubed or tubeless pneumatic tire; and
a pressure sensor attached to said input device.

17. The system of claim 16, further comprising a controller electronically coupled to the injector and the pressure sensor.

18. A system for making a tire with a substantially filled core comprising:

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20. The system of claim 18, further comprising a controller electronically coupled to the grinding device and the elongated screw device.